IFW/ AF

PATENT APPLICATION

RESPONSE UNDER 37 CFR §1.116
TECHNOLOGY CENTER ART UNIT 2831

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Atsuo TANAKA

Application No.: 10/775,143

Filed: February 11, 2004

For: FLAT SHIELD CABLE

Group Art Unit: 2831

Examiner: C. N. Nguyen

Docket No.: 114011.01

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the January 21, 2005 Final Office Action, please consider the following:

Claims 1-15 are pending. Reconsideration based on the following remarks is respectfully requested.

The Final Office Action rejects claims 1-5 and 7-15 under 35 U.S.C. §103(a) over Japanese Patent Publication JP 06-084411 to Imamura *et al.* (hereinafter "Imamura") in view of U.S. Patent 4,268,714 to Mori; and claim 6 under 35 U.S.C. §103(a) over Imamura in view of Mori and further in view of U.S. Patent 6,444,902 to Tsao *et al.* (hereinafter "Tsao"). These rejections are respectfully traversed.

Imamura and Mori, alone or in combination do not teach or suggest a flat shield cable including a plurality of parallel signal lines, each of the signal lines having an insulating cover, wherein an outer diameter of each signal wire is in a range of 1.27 mm to 1.40 mm, a

cross-sectional area of a core conductor of each signal wire is in a range of 0.05 to 0.08 mm^2, a drain line disposed on a first side of the signal lines, a dummy line disposed on a second side of the signal lines, a shield tape covering the signal lines, the drain line, and the dummy line, the shield tape including a metal foil, a polymer layer and an adhesive film, the metal foil being adjacent the signal lines, the drain line and the dummy line, the polymer layer adjacent to the metal foil, and the adhesive film being adjacent to the polymer layer, and an insulating sheath covering the shield layer and being adjacent to the adhesive film, wherein the plurality of signal lines, the drain line and the dummy line are co-planar, and the adhesive connecting the polymer layer and the insulating sheath to enable removal of the insulating sheath and the polymer layer together without also removing the metal foil, as recited in claim 1.

Instead, Imamura discloses a flat shield cable of coplanar lines including a plurality of signal lines (1) with insulating covers (2) and conductive wires (8) on opposite sides of the signal lines wrapped together with a net-shaped metal wire mesh (12). At intermittent intervals, the conductive wires (8) are alternately covered with an insulator (9) and in electrical contact with the mesh (12). Imamura teaches that the mesh (12) absorbs electrical noise, which is then carried by the conductive wires (8) to ground (paragraph [0013] and drawings 1(a)-(c) of Imamura). Thus, Imamura fails to teach or suggest a dummy line intended to absorb bending stresses on the flat shield cable, as provided by Applicant's claimed features.

Also, Mori discloses a shielded wire with a plastic insulation layer 2 covering an inner conductor 1. In particular, Mori teaches covering the layer 2 with a shielding tape 33 that includes a metal foil 34′ from a metal portion 34 and an adhesive film 35 helically wrapped around a plastic insulation layer 2 of a cable. The metal foil 34′ intermittently connects to a ground wire 4 (col. 2, lines 58-68, col. 3, lines 1-3 and Fig. 4 of Mori).

The teachings of Imamura for a noise-suppressing wire mesh cover cannot be reasonably combined with the adhesive film and polymer layer of Mori. An artisan of ordinary skill would not be inclined to adhere a wire mesh by a multi-layer tape because success would not be expected for such attachment. Moreover, such combination might interfere with either the intended function of the noise suppression of Imamura or the grounding of the shielding tape of Mori. Further, even assuming that motivation could be established for combining the wire mesh of Imamura with the multi-layered shielding tape of Mori, their teachings have no bearing on the advantages in bending resistance from Applicant's claimed features of a dummy line, and therefore do not render them obvious to one of ordinary skill in the art.

Also, Tsao does not compensate for the deficiencies of Imamura and Mori outlined above for claim 1. Nor does Tsao teach, disclose or suggest the additional features recited in claim 6 regarding comparative diameters of the drain and dummy lines. Instead, Tsao discloses an electric cable with shielded signal wire pairs 12 flanked by drain wires 14, 16. In particular, Tsao teaches the drain wire 14 between two wire pairs 12, and drain wires 16 on opposite sides of the drain wire 14 along a plane 10 (col. 2, lines 24-38 and Fig. 2 of Tsao). There is no teaching or suggestion of Tsao of a dummy line for structural stiffening. Thus, Tsao fails to teach or suggest the features of Applicant's claims.

Further, there is no motivation to combine features related to the flanking drain wires of Tsao with the noise-suppressing wire mesh of Imamura and the grounded tape of Mori. Nor has the Final Office Action established sufficient motivation for a *prima facie* case of obviousness. Even assuming that motivation to combine the applied references is established, the combination fails to teach or suggest Applicant's claimed features.

Applicant further submits test results, as attached, that demonstrate the reported advantages of a flat shield cable equipped with a dummy line. In particular, a dummy line,

unassociated with a ground connection such as a drain line, absorbs stresses induced from severe bending (or crimping) along the longitudinal axis of the cable. Subject to several 180° bends, conductive wires yield and break caused by low-cycle fatigue.

The test results show that conducting wires within a cable equipped with a dummy line resist bending rupture about twice as well as conducting wires within a cable lacking such a fatigue transfer mechanism. The enclosed test comparisons include a color version to facilitate visual contrast of the depicted wires, and a gray-scale monochrome version to present the text in a more readable fashion. In addition, these advantages are further evident by the commercial success enjoyed from improved structural performance experienced by consumers that use products employing Applicant's claimed features.

A *prima facie* case of obviousness for a §103 rejection requires satisfaction of three basic criteria: there must be some suggestion or motivation either in the references or knowledge generally available to modify the references or combine reference teachings, a reasonable expectation of success, and the references must teach or suggest all the claim limitations (MPEP §706.02(j)). Applicant asserts that the Final Office Action fails to satisfy these requirements with Imamura, Mori and Tsao.

For at least these reasons, Applicant respectfully asserts that the independent claim is patentable over the applied references. The dependent claims are likewise patentable over the applied references for at least the reasons discussed as well as for the additional features they recite. Consequently, all the claims are in condition for allowance. Thus, Applicants respectfully request Applicant respectfully requests that the rejections under 35 U.S.C. §103 be withdrawn.

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

James A. Oliff
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JAO:GWT/gwt

Attachment:
Test Method and Test Results (color, monochrome versions)

Date: April 21, 2005

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

·TEST METHOD

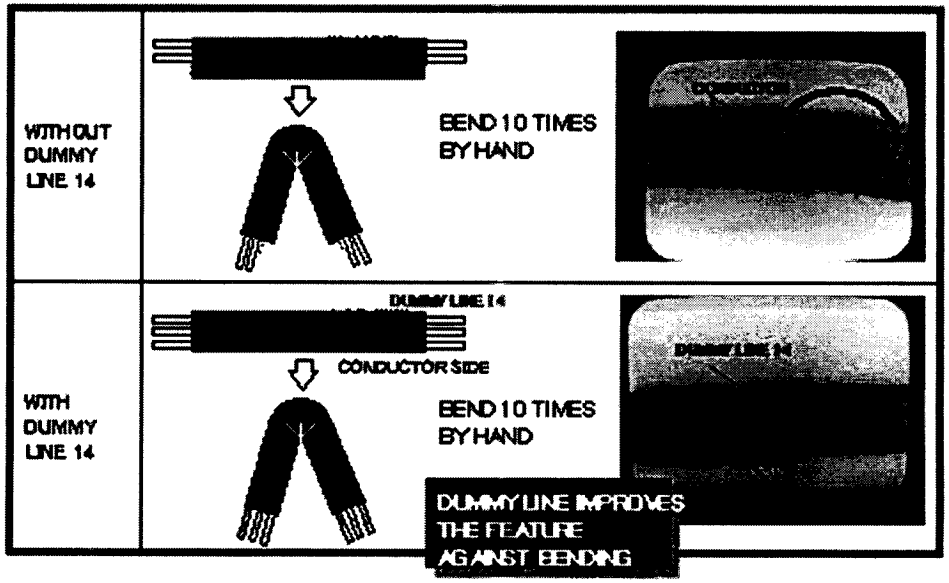
Bend the specimen (flat cable) 10 times in the width direction (180 degree of angle) by hand and check the condition of the conductors by soft X-ray. If there is no disconnection, the test will continue till the disconnection occurs.

·TEST RESULTS

● **Check result after ten times bending**

- **In case of without dummy line 14**
  Serious buckling has already occurred.
  It will lead the disconnection easily.

- **In case of with dummy line 14**
  Serious buckling cannot be seen anywhere on the conductor.



● **Bending times to reach disconnection**

- **In case of without dummy line 14**
  20 times

- **In case of with dummy line 14**
  40 times